

REMARKS

In view of the above amendments and the following remarks, reconsideration of the rejections contained in the Office Action of June 24, 2005 is respectfully requested.

In order to make necessary editorial corrections, the entire specification and abstract have been reviewed and revised. As the revisions are quite extensive, the amendments to the specification and abstract have been incorporated into the attached substitute specification and abstract. For the Examiner's benefit, a marked-up copy of the specification indicating the changes made thereto is also enclosed. No new matter has been added by the revisions. Entry of the substitute specification is thus respectfully requested.

As indicated above, all of the original claims have been slightly amended so as to place the original claims in a preferred form. However, amended claims 1 and 4 still read on the elected species. In addition, new dependent claims 17 and 18 have been added, and these new dependent claims also read on the elected species.

The Examiner rejected independent claim 1 as being unpatentable over the Temmesfeld reference (USP 4,746,279) in view of the Sturges reference (USP 4,546,742); and rejected claim 4 as being unpatentable over the Temmesfeld reference in view of the Sturges reference, and further in view of the Nixon reference (USP 4,476,820). However, the Examiner's rejections are traversed. For the reasons discussed below, it is respectfully submitted that independent claim 1 and the claims that depend therefrom are clearly patentable over the prior art of record.

As explained on page 2, line 34 through page 3, line 7 of the original specification, conventional automotive heat exchanging systems are not able to improve fuel efficiency caused by low automatic transmission oil temperature when the vehicle is started. In particular, a shutter in the conventional automotive heat exchanging systems is controlled based on *engine temperature*, which does not necessarily correspond to the automatic transmission oil temperature (because it takes a longer time to warm the automatic transmission oil). Therefore, the conventional automotive heat exchanging systems do not adequately respond to low automatic transmission oil temperatures, so that fuel consumption is higher than necessary.

Consequently, the present invention as recited in independent claim 1 has been developed in order to address this problem.

In particular, independent claim 1 is directed to an automotive heat exchanging system that comprises a heat exchanger at a front of an engine and an automatic transmission which is to be supplied with coolant, an electric fan located at the front of the automatic transmission, a shroud attached to and covering peripheral portions of the electric fan and the heat exchanger to form an air passage inside of the shroud, and a shutter arranged in the shroud and having a periphery attached to the shroud. The shutter is operable to open and close the air passage formed in the shroud. *An automatic transmission oil temperature sensor can sense a temperature of oil in the automatic transmission and output an automatic transmission oil temperature signal, and a controller can control opening and closing of the shutter based on the automatic transmission oil temperature signal received from the automatic transmission oil temperature sensor.* Consequently, air flow to the automatic transmission can be controlled more accurately so as to ensure that the automatic transmission oil is properly and quickly heated, thereby improving fuel economy.

The Temmesfeld reference is directed to a control arrangement for cooling air including a shutter and a controller. However, as the Examiner has acknowledged on page 3 of the Office Action, the Temmesfeld reference does not teach an oil temperature sensor of any type. Thus, the Temmesfeld reference also does not disclose or suggest an automatic transmission oil temperature sensor which outputs an automatic transmission oil temperature signal received by a controller for opening and closing a shutter based on the signal.

Nonetheless, the Examiner asserted that the Sturges reference teaches an oil temperature sensor 31 that senses a temperature of oil in the automatic transmission. However, it appears that the Examiner's interpretation of the Sturges reference is incorrect, as explained below.

Column 3, line 67 through column 4, line 2 of the Sturges reference explains that the sensor 31 senses the temperature of *lubricating oil*, but does not explicitly state where the lubricating oil to be sensed is located. In other words, the Sturges references does not explicitly state the type or location of the sensor 31. However, based on the overall disclosure of the

Sturges reference, and the purpose to which the Sturges reference is directed, it is clear that the sensor 31 is not an automatic transmission oil temperature sensor. Specifically, column 1, lines 6-10 of the Sturges reference explains that the invention relates to a temperature control system *for an internal combustion engine*. Similarly, column 1, lines 50-54 of the Sturges reference explains that the invention provides a temperature control system for an internal combustion engine. Additional sections of the Sturges reference also clearly indicate that the sensor 31 is an *engine* lubrication oil temperature sensor, rather than an *automatic transmission* oil temperature sensor (see, for example, column 2, lines 36-42; and column 10, lines 54-59). Thus, the Sturges reference does not disclose or even suggest an automatic transmission oil temperature sensor for sensing a temperature of oil in the automatic transmission, or a controller that receives an automatic transmission oil temperature signal so as to control opening and closing of a shutter based on the signal, as recited in independent claim 1.

The Nixon reference also does not disclose or suggest an automatic transmission oil temperature sensor for sensing a temperature of an oil in the automatic transmission. Therefore, one of ordinary skill in the art would not be motivated by the Nixon reference or the Sturges references to modify the Temmesfeld reference so as to obtain the invention recited in independent claim 1, in which an automatic transmission oil temperature sensor outputs an automatic transmission oil temperature signal, and in which a controller opens and closes a shutter based on the automatic transmission oil temperature signal. Accordingly, it is respectfully submitted that amended independent claim 1 and the claims that depend therefrom are clearly patentable over the prior art of record.

In view of the above amendments and remarks, it is submitted that the present application is now in condition for allowance. However, if the Examiner should have any comments or suggestions to help speed the prosecution of this application, the Examiner is requested to contact the Applicant's undersigned representative.

Respectfully submitted,

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